Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	
Expanding Flexible Use of the 3.7 GHz to 4.2 GHz Band	GN Docket No. 18-122
Petition for Rulemaking to Amend and Modernize Parts 25 and 101 of the Commission's Rules to Authorize and Facilitate the Deployment of Licensed Point-to-Multipoint Fixed Wireless Broadband Service in the 3.7-4.2 GHz Band	RM-11791
Fixed Wireless Communications Coalition, Inc., Request for Modified Coordination Procedures in Band Shared Between the Fixed Service and the Fixed-Satellite Service	RM-11778

REPLY COMMENTS OF RIGNET SATCOM, INC.

RigNet Satcom, Inc. ("RigNet") submits these reply comments in connection with the above-captioned Notice of Proposed Rulemaking[1] and comments filed in response thereto regarding potential reallocation of portions of the 3.7-4.2 GHz band (the downlink/earth station receive portion of conventional C-band fixed-satellite service ("FSS") spectrum) for terrestrial wireless services. Making additional spectrum available for terrestrial wireless services in geographic areas with a demonstrated shortage of capacity would result in public interest benefits but, like other commenters in this proceeding, RigNet also believes that C-band satellite services are a critical element of the U.S. communications network that must be preserved. RigNet therefore urges the Commission to protect incumbent C-band earth station operations, ensure appropriate access to 3.7-4.2 GHz spectrum for future earth station operations, and facilitate shared use of C-band downlink spectrum for satellite-based and terrestrial broadband operations in the Gulf of Mexico.

[1] *See Expanding Flexible Use of the 3.7-4.2 GHz Band*, Order and Notice of Proposed Rulemaking, GN Docket No. 18-122, *et al.* (July 13, 2018).

I. INTRODUCTION

RigNet is a leading provider of communications services to the energy and mining, maritime, and government sectors. RigNet operates a C-band satellite services network to deliver communications connectivity to customers in remote and underserved regions in the United States and around the world. It provides satellite-based operational and crew communications to offshore rigs and support vessels in the Gulf of Mexico, and to remote energy and mining facilities in the Americas and elsewhere, that are not adequately served by terrestrial communications technologies.

In addition, RigNet utilizes terrestrial wireless technologies to serve its commercial customers. For example, RigNet operates the most extensive WiMax network in the Gulf of Mexico to support the data-intensive operations of rigs and support ships. Thus, RigNet fully appreciates the importance of both satellite and wireless communications offerings in serving its unique markets.

These important commercial and government communications result in significant benefits for U.S. consumers. From energy exploration and mineral extraction to infrastructure and development projects, RigNet provides communications connectivity for remote operations with significant economic and social impacts. It is therefore in the public interest for the Commission to balance protecting incumbent C-band earth station operations and preserving satellite access to the 3.7-4.2 GHz band with the need for additional wireless spectrum in areas of high demand.

II. THE COMMISSION SHOULD PROTECT INCUMBENT C-BAND EARTH STATION OPERATIONS AND PRESERVE ACCESS TO THE 3.7-4.2 GHZ BAND

The vast majority of commenters agree that C-band satellite and earth station facilities constitute critical information infrastructure for commercial and government operations. RigNet generally agrees with the comments of the Satellite Industry Association,[2] as well as those of Boeing and Lockheed Martin,[3] that establish the wide range of C-band satellite communications services and urge caution in introducing terrestrial wireless services in any portion of the C-band.

RigNet notes the comments of NCTA, NABA and a wide range of content providers confirming the widespread use of C-band for important nationwide video distribution services.[4] RigNet also notes the comments of Alaska Communications Internet and GCI Communications Corporation,[5] as well as other value-added service providers such as Speedcast and ITC Global,[6] that demonstrate the special circumstances of remote regions and seek to preserve C-band spectrum for critical gateway earth station operations and remote communications services.

The conventional C-band (including the 3.7-4.2 GHz downlink band and the associated 5.925-6.425 GHz uplink band) is essential for the provision of satellite services in the United

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[2] *See* Comments of the Satellite Industry Association, GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 2-9.

[3] Comments of the Boeing Company, GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 2-7; Comments of Lockheed Martin Corporation, GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 8-10.

[4] *See, e.g.,* Comments of NCTA – The Internet & Television Association, GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 3-6; Comments of the North American Broadcasters Association (NABA), GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 2.

[5] *See* Comments of Alaska Communications Internet, LLC, GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 4-11; Comments of GCI Communication Corp., GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 5-9.

[6] *See* Comments of Speedcast Communications, Inc., GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 2; Comments of ITC Global Inc., GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 2.

States. The broad coverage and high availability of C-band satellites make them especially well-suited for remote, data-intensive applications such as energy, mining, and maritime operations, as well as for providing connectivity to sparsely populated or geographically remote regions.

In an earlier notice of inquiry, the Commission itself noted that such FSS spectrum "has a variety of uses, including providing broadband Internet service to consumers (particularly in rural areas), enabling communications on board planes and ships, delivering television programming to cable headends, providing data connectivity for merchant credit card transactions, and supporting corporate data networks."[7] These important services rely on the availability of gateway earth stations operating in in the 3.7-4.2 GHz band. RigNet urges the Commission to adopt appropriate provisions to grandfather incumbent C-band gateway earth station operations in the United States.

End-user earth station operations, especially those in remote locations, also should be grandfathered. Because additional spectrum in the C-band is not required to satisfy consumer demand for terrestrial mobile services in less densely populated regions, there is no public interest basis to relocate incumbent satellite services. Thus, any new rules or policies adopted by the Commission in this proceeding should ensure that C-band end-user earth station operations currently authorized in the 3.7-4.2 GHz band are preserved.

However, in areas where there is a demonstrated need for additional spectrum for mobile wireless services, it may be possible to implement a spectrum coordination or secondary market approach that would allow new terrestrial services to operate in spectrum previously reserved for satellite earth stations. In this connection, RigNet notes the comprehensive proposal of the C-

[7] *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Notice of Inquiry, GN Docket No. 17-183 (Aug. 3, 2017) at ¶ 8.

Band Alliance (comprised of the four largest C-band satellite operators), which seeks to pursue secondary market transactions with wireless carriers to make spectrum available for terrestrial services and use the proceeds from such transactions to relocate affected earth station operators.[8] RigNet is still studying the C-Band Alliance proposal but believes that the fundamental elements of the approach may have merit.

In addition, RigNet agrees that high-power, adjacent-band transmissions from terrestrial base stations (and potentially from mobile terminals) can overwhelm sensitive earth station receivers in the 3.7-4.2 GHz band and complicate any potential for transitioning a portion of the band to terrestrial wireless services. Earth station equipment modification (such as the installation of filters) and use of adequate guard bands can facilitate adjacent-band terrestrial operations. If the Commission moves forward with reallocating a portion of the 3.7-4.2 GHz band for use in areas of constrained capacity, the Commission should ensure that affected earth station operators and satellite service providers are appropriately compensated for all costs of accommodating new entrants regardless of the transition mechanism ultimately adopted.

III. THE COMMISSION SHOULD FACILITATE SHARED USE OF C-BAND SPECTRUM FOR SATELLITE-BASED AND TERRESTRIAL BROADBAND OPERATIONS IN THE GULF OF MEXICO

C-band spectrum provides important communication services for off-shore energy and commercial maritime applications. The Commission recently acknowledged this in its earth stations in motion ("ESIM") order by adopting new rules for C-band ESIM operations.[9] There is also a need, however, for high-capacity terrestrial communications links among and around oil

[8] *See* Comments of the C-Band Alliance, GN Docket No. 18-122, *et al.* (filed Oct. 29, 2018) at 4-5, 10-11.

[9] *Amendment of Part 2 and 25 of the Commission's Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to Fixed-Satellite Service*, Report and Order and Further Notice of Proposed Rulemaking, GN Docket No. 17-95 (September 27, 2018).

and gas sites in the Gulf of Mexico. Thus, this proceeding may offer an appropriate vehicle for access to additional terrestrial wireless spectrum to satisfy these niche, data-intensive, local-area communications requirements.

Specifically, because oil and gas sites require significant bandwidth to support high-capacity operational communications, as well as crew welfare and other requirements, they can be viewed as capacity-constrained areas. Because the geographical areas in which such high capacity is required is relatively small (i.e., in the immediate area around a rig), access to a portion of the 3.7-4.2 GHz band for terrestrial services would not have a material adverse impact on the use of the 3.7-4.2 GHz band for satellite services in the Gulf of Mexico generally.

In addition, because of their limited "spectrum footprint," local area networks operating in a portion of the 3.7-4.2 GHz band potentially could be implemented on a first-in-time/coordination basis similar to the process embodied in Part 101 of the Commission's rules without the need for intervention by a third-party transition administrator. The use of lower-power base stations (to serve a smaller geographic area), separation distances, and other factors suggest that niche Gulf of Mexico operations could be subject to rules different from those adopted to facilitate operation of ubiquitous, land-based terrestrial wireless networks serving densely populated urban areas. Therefore, the Commission should ensure that any rules or policies adopted in the proceeding facilitate access to adequate spectrum in the Gulf of Mexico for both satellite-based and terrestrial broadband networks.

IV. CONCLUSION

For the foregoing reasons, RigNet urges the Commission to protect incumbent C-band earth station operations in the 3.7-4.2 GHz band, preserve future access to the band for such services (especially in remote areas), and facilitate shared access to the band for satellite-based and terrestrial broadband networks in the Gulf of Mexico. The Commission should also ensure that affected C-band earth station operators and service providers are fully compensated for the costs of accommodating new terrestrial mobile services in any portion of the 3.7-4.2 GHz band.

Respectfully submitted,

RIGNET SATCOM, INC.

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Raul Magallanes
Vice President, Associate General Counsel
& Chief Compliance Officer
RigNet
15115 Park Row Blvd., Suite 300
Houston, TX 77084

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